

ABSTRACT

The method for forming an image with a wide dynamic range makes use of an image sensor containing subsets of pixels that can be individually reset. After an initial reset (21), a pixel or row of pixels is exposed (22) for a first time interval and the gray value(s) ($P_{long}^{(255)}$) are read out (23) and stored (24). The pixel or row of pixels is then reset (25) and exposed (26) for a second, shorter time interval. The second gray value(s) ($P_{short}^{(255)}$) is/are read out (27) and either stored or immediately combined (28) with the first gray value(s) ($P_{long}^{(255)}$) by means of a merging function (f). The merging function (f) ensures a monotonic, smooth change in output from the lowest to the highest gray values. The procedure is repeated for all pixels or rows of pixels in the image sensor, thus obviating the need for the storage of complete images. The method reduces temporal aliasing to a minimum and eliminates spatial aliasing.

(Figure 3).